UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

OCT 3 1 2007

Mr. Edward Galbraith, Director
Water Pollution Control Program
Water Protection and Soil Conservation Division
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Dear Mr. Galbraith:

RE: Permit Limits in Lieu of a TMDL for Little Lindley Creek (WBID 1438)

This letter responds to the submission from the Missouri Department of Natural Resources (MDNR) dated August 13, 2007, regarding Little Lindley Creek. Little Lindley Creek was listed as impaired on Missouri's 1998 §303(d) list, for Biochemical Oxygen Demand (BOD) and Non Filterable Residue (NFR). It was subsequently placed on the 2002 §303(d) list for BOD and volatile suspended solids (VSS). MDNR proposes to correct the impairments with National Pollutant Discharge Elimination System (NPDES) permit limits in lieu of Total Maximum Daily Loads (TMDLs). The following water body segment is proposed to be corrected through permit limits.

Water Body	WBID	Impairment	Source	Permit #	Year added to list
Little Lindley Creek	1438	BOD VSS	City of Buffalo's waste water treatment plant (WWTP)	MO-0094854	1998

Waters require TMDLs when certain pollution control requirements are not stringent enough to implement water quality standards (WQS) for such waters. To exempt an impaired water from the TMDL process, the pollution control requirements cited in the regulation under 130.7(b)(1)(i), (ii), and (iii) must be established and enforced by federal, state, or local laws or regulations, and be stringent enough that, when applied, the receiving water will meet WQS.

In regards to Little Lindley Creek, Federal regulations at 40 CFR 130.7(b)(1)(ii) provide that where ["more stringent effluent limitations (including prohibitions) required by either state or local authority preserved by section 510 of the Act, or Federal authority (law, regulation, or treaty")] are stringent enough to implement WQS, a TMDL is not required. The Environmental Protection Agency (EPA) has completed its review of this submission, and other previously submitted information supporting this permit in lieu of a TMDL, and concur that a TMDL is not

required for this impaired water body because the impairments are being addressed through more stringent effluent limitations as per 40 CFR 130.7(b)(1)(ii).

The City of Buffalo's WWTP has been identified as the sole source for the BOD and VSS impairments on Little Lindley Creek as a result of surface water monitoring directly above and below the plant. An NPDES permit for the plant was issued on July 20, 2007. The permit includes a schedule of compliance (SOC) to commence by January 1, 2008. Final limits, which will achieve WQS for BOD and VSS, will be imposed through the July 20, 2007, permit with the conclusion of the SOC by December 31, 2009. In review of the permit, BOD and total suspended solids were each set at 45 mg/L maximum weekly (30 mg/L monthly average). Additionally, the permit includes once per month instream monitoring for dissolved oxygen, temperature, pH, and ammonia, ensuring limits are achieved. The permit also includes the addition of permit limits for ammonia and a reopener clause to allow for stricter limits if monitoring shows WQS violations. All upgrades must be completed by December 31, 2009, including elimination of outfall 002. The upgraded facility will include an aeration basin, headwork upgrades, expanded sludge storage, and ultraviolet disinfection.

Enclosed with this letter is the Region 7 4b Rationale Document which summarizes EPA's approval of the permit in lieu of (PIL) a TMDL. EPA believes the separate elements of the PIL described in the enclosed form adequately address the pollutants of concern.

If you have any questions or concerns in regards to this matter, please do not hesitate to contact Tabatha Adkins at (913)551-7128.

Sincerely,

William A. Spratlin
Director
Water, Wetlands and Pesticides Division

Enclosure

cc: John Hoke
Missouri Department of Natural Resources

Phil Schroeder
Missouri Department of Natural Resources

EPA Region 7 4B Rationale

Water body ID(s): MO_1438 **State:** MO
Water body Name(s): Little Lindley Creek
Pollutant(s): BOD, VOLATILE SOLIDS
HUC(s): 10290107
Basin:
Tributary(ies):
First Listing Cycle: 1998
Submittal Date: 08/08/2007 **Approved:** Yes

Submittal Letter

State submittal letter indicates final Maximum Daily Load(s) for specific pollutant(s)/water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act. Include date submitted letter was received by EPA and date of receipt of any revisions.

EPA received this submittal with cover letter, final permits, and fact sheets on August 13, 2007.

Concern

A statement of the problem causing the impairment.

The sole source of the impairments is the City of Buffalo's state operating permit (permit number MO-0094854) for the Buffalo wastewater treatment plant (WWTP). Historically the permit has two outfalls listed. The storm water clarifier discharges (outfall 002) into a manhole where it combines with the effluent from the secondary treatment side of the plant prior to being discharged at outfall 001. Outfall 001 discharges into a ditch that runs into an unnamed tributary that runs into Little Lindley Creek less than 0.1 mile from the outfall. In 2005, significant discharges of volatile suspended solids (VSS) had been deposited during heavy rains. The facility continues to be the sole source of VSS due to their peak flow clarifier (outfall 002) and inadequate sludge storage.

Implementation Strategy

A description of the proposed implementation strategy and supporting pollution controls necessary to achieve WQS, including the identification of point and nonpoint source loadings that when implemented assure the attainment of all applicable WQS.

Listing for Little Lindley Creek was based on visual surveys conducted by MDNR. Improvements were made to the system by 2001. A biological and physicochemical assessment study was conducted in 2002-2003. Additional chemical monitoring was conducted late 2003. During site visits conducted by MDNR in 2005, significant discharges of sludge (VSS) were noted. A wasteload allocation (WLA) study was conducted in 2006 setting total suspended solids (TSS) at 30 mg/L (975.8 lbs/d). Biochemical oxygen demand (BOD) and

TSS were each set at 45 mg/L maximum weekly (30 mg/L monthly average). The WLA for ammonia was set seasonally (May 1- October 31, November 1 – April 30) at 3.7/7.5 mg/L daily maximum and 1.9/3.7 mg/L monthly average. These WLAs will ensure the water quality standards (WQS) for dissolved oxygen (DO) of 5 mg/L and the narrative standards for VSS will be met.

The permit was reissued July 20, 2007. A schedule of compliance (SOC) was included. All upgrades must be completed by December 31, 2009 (including elimination of outfall 002). The upgraded facility will include an aeration basin, headwork upgrades, expanded sludge storage and ultraviolet disinfection. There will be expanded peak flow handling capabilities, without compromising secondary treatment, which will result in elimination of sludge releases. WQS will be achieved for VSS, through compliance with standard secondary treatment limits.

Time

An estimate or projection of the time when WQS will be met.

December 31, 2009, all upgrades (including elimination of outfall 002) must be completed. At that time WQS should be achieved in Little Lindley Creek.

Schedule

A reasonable schedule for implementing the necessary pollution controls.

The permit was reissued July 20, 2007. An SOC was included. January 1, 2008 initiation of construction for upgrade of the facility begins. January 1, 2009 a detailed progress report is due. A completion date of December 31, 2009 with all upgrades (including elimination of outfall 002) must be completed.

Monitoring

A description of, and schedule for, monitoring milestones for tracking and reporting progress to EPA on the implementation of the pollution controls.

Ambient stream monitoring by MDNR will be scheduled post construction to determine if the impairment has been eliminated. The permit includes once per month instream monitoring 1/4 of a mile downstream of the confluence of the effluent and Little Lindley Creek, for DO, temperature, pH, and ammonia, to ensure permit limits are being achieved.

Commitment to Revise

A commitment to revise, as necessary, the implementation strategy and pollution controls if progress towards meeting WQS is not being shown.

The permit includes a reopener clause to allow for incorporation of stricter limits if monitoring reveals violations of WQS.

********** ***Pollution control requirements in the submittal*** **********

National Pollution Discharge and Elimination System (NPDES)

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0094854
Owner:	City of Buffalo
Address:	PO Box 410, Buffalo, MO 65622
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Buffalo Wastewater Treatment Plant
Facility Address:	Highway 65, Buffalo, MO 65622
Legal Description:	NE ¼, SE ¼, Sec. 15, T34N, R20W, Dallas County
Latitude/Longitude:	Outfall #001 +3739572/-09306247, Outfall #002 +3740035/-09306211
Receiving Stream:	Little Lindley Creek (U)
First Classified Stream and ID:	Little Lindley Creek (C)(01438) 303(d) list
USGS Basin & Sub-watershed No.:	(10290107-030001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

July 20, 2007
Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

July, 19, 2012
Expiration Date

Edward Galbraith, Director of Staff, Clean Water Commission

Outfall #001 - POTW - SIC #4952
Oxidation ditch/clarifiers/sludge drying beds/sludge is land applied.
Design population equivalent is 5,750.
Design flow is 0.59 MGD.
Actual flow is 0.68 MGD.
Design sludge production is 96.6 dry tons/year.

Outfall #002 – POTW – SIC #4952
Stormwater clarifier.
Design flow is 3.9 MGD.
Actual flow is dependent on precipitation.

Outfall S1
Instream monitoring
Approximately one quarter mile downstream of where effluent enters Little Lindley Creek

Legal Description: E ½, Sec. 15, T34N, R20W, Dallas County
Latitude/Longitude: +3739593/-09306401
Receiving Stream: Little Lindley Creek (U)
First Classified Stream and ID: Little Lindley Creek (C)(01438) 303(d) list
USGS Basin & Sub-watershed No.: (10290107-030001)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until April 1, 2010. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Ammonia as Nitrogen	mg/L	*		*	once/month	grab
Oil & Grease	mg/L	*		*	once/month	grab
Fecal Coliform (Notes 1 & 2)	#/100ml	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE September 28, 2007.

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on April 1, 2010 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Ammonia as Nitrogen	mg/L				once/month	grab
(May 1 – Oct 31)		3.7		1.9		
(Nov 1 – April 30)		7.5		3.7		
Oil & Grease	mg/L	15		10	once/month	grab
Fecal Coliform (Notes 1 & 2)	#/100ml	1000		400	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE June 28, 2010.

Note 1 – Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

Note 2 – The Monthly Average Limit for Fecal coliform is expressed as a geometric mean.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall 001						
Flow	MGD	*		*	once/weekday	24 hr. total***
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/month	24 hr. composite****
Total Suspended Solids	mg/L		45	30	once/month	24 hr. composite****
pH – Units	SU	**		**	once/month	grab
Temperature	°C	*		*	once/month	grab
Outfall 002 (Note 3)						
Flow	MGD	*		*	once/discharge/day	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/discharge/day	grab
Total Suspended Solids	mg/L		45	30	once/discharge/day	grab
pH – Units	SU	**		**	once/discharge/day	grab
Outfall S1						
Dissolved Oxygen	mg/L	*		*	once/month	grab
Ammonia as N	mg/L	*		*	once/month	grab
pH – Units	SU	*		*	once/month	grab
Temperature	°C	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE September 28, 2007. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Outfall 001 Whole Effluent Toxicity Test	% Survival	See Special Conditions	once/year	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2008.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

*** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.

**** A composite sample shall be made up from 24 subsamples collected within a 24 hour period with a minimum of thirty minutes between each grab sample

Note 3 – Only the wastewater in excess of the noncontinuous wastewater treatment plant hydraulic capacity of 3.0 MGD may be discharged from outfall #002 [10 CSR 20-7.015(8)(B)3.E.(III)]. Discharges are allowed only to prevent severe damage to the treatment facility which would cause it to become inoperable [40 CFR 122.41(m)].

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Influent Biochemical Oxygen Demand$_5$	mg/L	once/month	24 hr. composite****
Total Suspended Solids	mg/L	once/month	24 hr. composite****

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE October 28, 2007.

MO 780-0010 (8/91)

**** A composite sample shall be made up from 24 subsamples collected within a 24 hour period with a minimum of thirty minutes between each grab sample

D. SCHEDULE OF COMPLIANCE

1. By January 1, 2008, initiate construction of upgrades to the wastewater treatment facility. This shall be satisfied by issuance of a Notice to Proceed to the contractor performing the construction.

2. By January 1, 2009, submit a progress report to the Southwest Regional Office detailing progress made in construction of the upgrades.

3. By December 31, 2009, complete construction of upgrades at the wastewater treatment facility and submit a complete application to modify this permit to reflect upgrades at the facility. This application shall include a certification of work complete from a licensed professional engineer registered in the State of Missouri. The upgrades completed by this date shall include elimination of outfall 002.

E. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

E. SPECIAL CONDITIONS (continued)

4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
   (1) One hundred micrograms per liter (100 µg/L);
   (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
   (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
   (4) The level established in Part A of the permit by the Director.

(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. Water Quality Standards

(a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.

(b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (5) There shall be no significant human health hazard from incidental contact with the water;
   (6) There shall be no acute toxicity to livestock or wildlife watering;
   (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

(a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.

(b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids that are removed from the domestic wastewater treatment facilities. Permit Standard Conditions, Part III shall apply to the land application of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

9. Permittee shall conduct a survey of all industries discharging to the municipal sewer system to determine what, if any, process wastewaters are being discharged to the sewer. Where such discharges are occurring the manufacturing operation(s) contributing to the discharge shall be identified along with the pollutants expected to be present. The results of the survey shall be submitted to the **Water Protection Program** within six (6) months of the date of permit issuance. After review of the survey results, the department may reopen this permit to include a requirement for the development of a pretreatment program meeting the requirements of 10 CSR 20-6.100.

C. SPECIAL CONDITIONS (continued)

11. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
001	100	once/year	24 hr. composite	April

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.

(b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.

(c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.

(d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.

(e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.

(f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

(h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.

(i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.

(k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.

(l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

E. SPECIAL CONDITIONS (continued)

11. Whole Effluent Toxicity tests (continued):

(m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.

(2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(3) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:
(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.

(5) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(10) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

(1) To pass a multiple-dilution test:
(a) For facilities with A computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,
(b) For facilities with an AEC greater than 30% the LC50 concentration must be greater than 100%; **AND**,
(c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions

(1) Test Type: Acute Static non-renewal

(2) All tests, including repeat tests for previous failures, shall include both test species listed below.

E. SPECIAL CONDITIONS (continued)

11. Whole Effluent Toxicity tests (continued):

(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

(4) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(6) Multiple-dilution tests will be run with:
- (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
- (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
- (c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

F. INSTREAM MONITORING CONDITIONS

1. Downstream samples should be taken immediately ¼ of a mile below the confluence of the effluent and Little Lindley Creek. In the event that a safe, accessible location is not present at this location, a suitable location can be negotiated with the department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface. The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream.

2. When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream/lake characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) or the lake depth from where the sample was collected. These observations shall be submitted with the sample results.

3. Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
   - If turbidity in the stream increases notably; or
   - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours

4. Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.

5. To obtain accurate measurements, D.O., temperature and pH analyses should be performed on-site in the receiving stream where possible. However, due to high flow conditions, access, etc., it may be necessary to collect a sample in a bucket or other container. When this is necessary, care must be taken not to aerate the sample upon collection. If for any reason samples must be collected from an alternate site from the one listed in the permit, the permittee shall report the location with the sample results.

6. Dissolved oxygen measurements are to be taken during the period from one hour prior to sunrise to one and one-half hour after sunrise.

7. Please contact the department if you need additional instructions or assistance.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resources
Fact Sheet – Operating Permit Renewal

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Permits in Missouri are issued by the Director of the Missouri Department of Natural Resources (department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). NPDES operating permits are issued for a period of five (5) years unless otherwise specified.

A Fact Sheet gives pertinent information regarding the applicable regulations, rational for the development of the NPDES Missouri State Operating Permit (operating permit), and the public participation process for operating permit listed below.

A Fact Sheet is not an enforceable part of an operating permit.

This Fact Sheet is for a Major ☐, Minor ☒, Industrial Facility ☐; Variance ☐;
General Permit Template ☐; and/or permit with widespread public interest ☐.

Facility Information

NPDES #: MO-0094854
Facility Name: Buffalo Wastewater Treatment Facility
Facility Address: PO Box 410, Buffalo, MO 65622
Owner's Name: City of Buffalo
Owner's Address: Highway 65, Buffalo, MO 65622

Facility Region: Southwest
Facility County: Dallas

Facility Type: POTW
Facility SIC Code(s): 4952

Facility Description: 0.59 MGD oxidation ditch, with final clarifiers. Sludge is land applied. This facility is in the process of upgrading. Construction to begin early 2008. The upgraded facility will include elimination of outfall 002, the peak flow bypass outfall. The upgraded facility will also have an expanded peak flow handling capability [4.25 MGD], without compromising secondary treatment. This will result in the elimination of sludge releases, and the recovery of Little Lindley Creek. The sole source of pollution in Little Lindley Creek was sludge releases from this facility. Compliance with standard secondary treatment limits will be sufficient for this stream to meet Water Quality Standards.

Application Date: November 16, 2006
Expiration Date: November 15, 2006
Last Inspection: 2/14/05 In Compliance ☒; Non-Compliance ☐

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.9	Secondary	Domestic wastewater	0.65
002	6.0	Primary	Domestic wastewater	0.65
S1	N.A.	N.A.	Instream monitoring point	0.4

Outfall #001 – Main facility outfall
Legal Description: NE ¼, SE ¼, Sec. 15, T34N, R20W, Dallas County
Latitude/Longitude: +3739572/-09306247
Receiving Stream: Little Lindley Creek (U)
First Classified Stream and ID: Little Lindley Creek (C)(01438) 303(d) list
USGS Basin & Sub-watershed No.: (10290107-030001)

Outfall #002 – Peak flow clarifier
Legal Description: NE ¼, SE ¼, Sec. 15, T34N, R20W, Dallas County
Latitude/Longitude: +3740035/-09306211
Receiving Stream: Little Lindley Creek (U)
First Classified Stream and ID: Little Lindley Creek (C)(01438) 303(d) list
USGS Basin & Sub-watershed No.: (10290107-030001)

Outfall #S1 – Instream monitoring
Legal Description: E ½, Sec. 15, T34N, R20W, Dallas County
Latitude/Longitude: +3739593/-09306401
Receiving Stream: Little Lindley Creek (U)
First Classified Stream and ID: Little Lindley Creek (C)(01438) 303(d) list
USGS Basin & Sub-watershed No.: (10290107-030001)

Water Quality History: In compliance with effluent limits. General criteria violations in receiving stream.

Comments: This facility is the sole source of pollution that puts Little Lindley Creek on the 303(d) List for VSS. This due to the peak flow clarifier and inadequate sludge storage. The peak flow clarifier is not able to adequately remove solids from the influent. When cleaning is necessary, there is no method for preventing releases of additional solids. The lack of sludge storage means that excess sludge is retained in the treatment train, enabling wash-out of sludge during high flows.
The upgraded facility will include an aeration basin, headworks upgrades, expanded sludge storage, and UV disinfection. Outfall 002 [the peak flow clarifier] will be eliminated.

Receiving Stream Information

Please mark the correct designated waters of the state categories of the receiving stream.

Missouri or Mississippi River [10 CSR 20-7.015(2)]:	Yes ☐; No ☒
Lake or Reservoir [10 CSR 20-7.015(3)]:	Yes ☐; No ☒
Losing [10 CSR 20-7.015(4)]:	Yes ☐; No ☒
Metropolitan No-Discharge [10 CSR 20-7.015(5)]:	Yes ☐; No ☒
Special Stream [10 CSR 20-7.015(6)]:	Yes ☐; No ☒
Subsurface Water [10 CSR 20-7.015(7)]:	Yes ☐; No ☒
All Other Waters [10 CSR 20-7.015(8)]:	Yes ☒; No ☐

10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Little Lindley Creek	U	----	General Criteria only	10290107	OO
Little Lindley Creek	C	1438	LWW, AQL, WBC***		

* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND).
** - Ecological Drainage Unit
*** - UAA conducted, use retained

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Little Lindley Creek	0.0	0.0	0.0
Little Lindley Creek	0.0	0.0	0.1

MIXING CONSIDERATIONS:

Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].
Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

RECEIVING STREAM MONITORING REQUIREMENTS:

Receiving stream monitoring to continue for at least the next permit cycle.

Site 01. (Downstream)

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Ammonia as N	once/month	grab	¼ mile downstream of where effluent enters Little Lindley Creek
Dissolved Oxygen mg/L	once/month	grab	
pH Units	once/month	grab	
Temperature (°C)	once/month	grab	

Rationale and Derivation of Effluent Limitations & Permit Conditions

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); CFR §122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ - All limits in this Fact Sheet are at least as protective as those previously established; therefore, backsliding does not apply.

☐ - Backsliding proposed in this Fact Sheet for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 § CFR 122.44.

ANTIDEGREDATION:
Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegredation plans are adopted by each State to minimize adverse effects on water.

Applicable ☐;

Not Applicable ☒;

As per [10 CSR 20-7.031(2)(D)], the three (3) levels of protection provided by the antidegredation policy in subsections (A), (B), and (C) of this section shall be implemented according to procedures developed by the department. *Missouri Antidegredation Rule and Implementation Procedure*, when approved, shall be applicable to new or upgraded/expanded facilities only.

APPLICABLE PERMIT PARAMETERS:
Effluent parameters for conventional, non-conventional, and toxic pollutants have been obtained from the previous NPDES operating permit for this facility, technology based effluent limits (TBEL), and from appropriate sections of the renewal application.

BIO-SOLIDS, SLUDGE, & SEWAGE SLUDGE:
Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

Applicable ☒;
This facility has been approved to land apply as per Permit Standard Conditions III and a department approved bio-solids management plan.

Applicable (new operating permits) ☐;
The permittee has proposed that sludge and bio-solids are not to be removed by a contract hauler for this facility. The permittee has proposed to land apply the sludge and bio-solids as per the Permit Standard Conditions Part III. The department has reviewed and approved the permittee's bio-solids management plan and therefore is approved to land apply said sludge and bio-solids as a means of treatment or disposal.

Not Applicable ☐;
This condition is not applicable to the permittee for this specific facility.

COMPLIANCE AND ENFORCEMENT:
Action taken by the department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

Applicable ☐;

Not Applicable ☒;
The permittee/facility is not under enforcement action.

PRETREATMENT PROGRAM:
The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR §403.3(q)].

Applicable ☒;
Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference. Permittee shall submit to the department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year.

Not Applicable ☐;
At this time, the permittee is not required to implement and enforce a Pretreatment Program.

REASONABLE POTENTIAL ANALYSIS (RPA):
Limitations must control all pollutants or pollutant parameters that are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above the Missouri Water Quality Standards.

Applicable ☐;
A RPA was conducted for this facility for (parameters) and determined that this facility has the potential to cause or contribute to violations of Water Quality. Please see **APPENDIX C – RPA RESULTS.**

Not Applicable ☒;
A RPA was not conducted for this facility.

SANITARY SEWER OVERFLOWS (SSOS), AND INFLOW & INFILTRATION (I&I):
Collection systems are a critical element in the successful performance of the wastewater treatment process. Under certain conditions, poorly designed, built, managed, operated, and/or maintained systems can pose risks to public health, the environment, or both. Causes of SSOs include, but are not limited to, the following: high levels of I&I during wet weather; blockages; structural, mechanical, or electrical failures; collapsed or broken sewer pipes; insufficient conveyance capacity; and vandalism. Effective and continuous management, operation, and maintenance, as well as ensuring adequate capacity and rehabilitation when necessary are critical to maintaining collection system capacity and performance while extending the life of the system.

Applicable ☒;
The permittee is required to develop or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance.

Not Applicable ☐;
This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Applicable ☒;
The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations where established in accordance with [10 CSR 20-7.031(10)]. There is also a Schedule dealing with completion of the proposed upgrades and implementation of an I&I reduction program.

Not Applicable ☐;
This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):
A plan to schedule activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. The plan may include, but is not limited to, treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Applicable ☐;
A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

Not Applicable ☒;
At this time, the permittee is not required to develop and implement a SWPPP.

VARIANCE:
As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law § 644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law § 644.006 to 644.141.

Applicable ☐;

Not Applicable ☒;
This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the department to release into a given stream after the department has determined to total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable ☒;
Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Not Applicable ☐;
Wasteload allocations were not calculated.

WLA MODELING:
Applicable ☐;

Not Applicable ☒;
A WLA study was either not submitted or determined not applicable by department staff.

WHOLE EFFLUENT TOXICITY (WET) TEST:
As per [10 CSR 20-7.031(1)(CC)], a toxicity test conducted under specified laboratory conditions on specific indicator organism; and as per [40 CFR §122.2], the aggregate toxic effect of an effluent measured directly by a toxicity test.

Applicable ☒;
Effective July 15, 2005, upon revision, renewal, modification, or issuance, all Missouri State Operating Permits under the NPDES will incorporate use of the following guidelines for determining the applicability and requirements for WET testing. WET testing requirements are established by the WET Test Policy, 120 § 308 of the Federal Water Pollution Control Act, and 40 CFR § 136.
Please check WET tests applicability for this facility:

- All major discharge facilities ☐;
- Facilities that are exceeding or routinely exceed their design flow ☐;
- Most municipals, domestic sewage dischargers ☒;
- Industrial dischargers or other dischargers that may alter their production processes throughout the year ☐;
- Facilities that may handle toxic substances, or substances that are toxic in large amounts ☐; and

- Facilities that have been granted seasonal relief of numeric limitations ☐.

Not Applicable ☐;
At this time, the permittee is not required to conduct WET test for this facility.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Applicable ☒;
This facility is the sole source of pollution that puts Little Lindley Creek on the 303(d) list. Therefore the department will submit this permit as a Permit-in-leiu-of-TMDL.

☐ – This facility is not considered to be a source of the above listed pollutant(s) or considered to contributed to the impairment of (stream name).

☐ – This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s).

Not Applicable ☐;
This facility does not discharge to a 303(d) listed stream.

Outfall #001 – Main Facility Outfall
EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	
BOD_5 **	MG/L	1		45	30	NO	
TSS **	MG/L	1		45	30	NO	
PH (S.U.)	SU	1	6 – 9		6 – 9	NO	
TEMPERATURE (°C)	°C	1	*		*	YES	****
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	3	3.7		1.9	YES	*
AMMONIA AS N (NOV 1 – APR 30)	MG/L	3	7.5		3.7	YES	*
FECAL COLIFORM	***	2	1000		400	YES	****
OIL & GREASE (MG/L)	MG/L	1	15		10	YES	*
WHOLE EFFLUENT TOXICITY (WET) TEST	N/A	1/10	N/A	N/A	N/A	YES	N/A
MONITORING FREQUENCY	N/A	1	N/A	N/A	N/A	NO	N/A

Outfall #002 – Peak flow clarifier
EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	

BOD_5 **	MG/L	1		45	30	YES	45/--
TSS **	MG/L	1		45	30	YES	45/--
pH (S.U.)	SU	1	6 – 9		6 – 9	NO	
MONITORING FREQUENCY	N/A	1	N/A	N/A	N/A	YES	N/A

* - Monitoring requirement only
** - this facility is required to meet a removal efficiency of 85% or more.
*** - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.
**** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard[2]
3. Water Quality Based Effluent Limits
4. Lagoon Policy
5. Ammonia Policy
6. Antidegradation Policy
7. Water Quality Model
8. Best Professional Judgement
9. TMDL or Permit in lieu of TMDL
10. WET test Policy

[2] – Water Quality Standards also includes Reasonable Potential Analysis.

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Biochemical Oxygen Demand (BOD_5).** Effluent limitations have been retained from previous state operating permit, [10 CSR 20-7.015(8)(B)1.].

- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, [10 CSR 20-7.015(8)(B)1.].

- **pH.** Effluent limitation has been retained from previous state operating permit, [10 CSR 20-7.015(8)(B)2.].

- **Temperature.** Monitoring requirement due to the toxicity of Ammonia varies by temperature.

- **Ammonia as Nitrogen**. Total Ammonia Nitrogen – Early Life Stages Present criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background ammonia as nitrogen for receiving stream is assumed to be = 0.01mg/L.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: May 1 – October 31, Winter: November 1 – April 30

$C_e = ((Q_e + Q_s)C - (Q_s * C_s))/Q_e$

Summer

Chronic
$C_e = ((0.9 + 0.0)1.5 - (0.0 * 0.01))/0.9$
$C_e = 1.5$ mg/L
$WLA_c = 1.5$ mg/L

Acute
$C_e = ((0.9 + 0.0)12.1 - (0.0 * 0.01))/0.9$
$C_e = 12.1$ mg/L
$WLA_a = 12.1$ mg/L

$LTA_c = 1.5(0.780)=1.2$ [CV = 0.6, 99th Percentile]
$LTA_a = 12.1\ (0.321)=3.9$ [CV = 0.6, 99th Percentile]
Use most protective number of LTA_c or LTA_a.

MDL = 1.2(3.11)=3.7 [CV = 0.6, 99th Percentile]
AML = 1.2(1.55)=1.9 [CV = 0.6, 95th Percentile, n = 30]

Winter

Chronic
$C_e = ((0.9 + 0.0)3.1 - (1.16 * 0.01))/0.9$
$C_e = 3.1$ mg/L
$WLA_c = 3.1$ mg/L

Acute
$C_e = ((0.9 + 0.0)12.1 - (0.0 * 0.01)/0.9$
$C_e = 12.1$ mg/L
$WLA_a = 12.1$ mg/L

$LTA_c = 3.1(0.78)=2.4$ [CV = 0.6, 99th Percentile]
$LTA_a = 12.1(0.321)=3.9$ [CV = 0.6, 99th Percentile]
Use most protective number of LTA_c or LTA_a.

MDL = 2.4(3.11)=7.5 [CV = 0.6, 99th Percentile]
AML = 2.4(1.55)=2.9 [CV = 0.6, 95th Percentile, n = 30]

Season	Maximum Daily Limit (mg/L)	Average Monthly Limit (mg/L)
Summer	3.7	1.9
Winter	7.5	3.7

- **Fecal Coliform** – All classified waters in Missouri shall be designated for Whole Body Contact Recreation. Operating permits issued following this rule will require effluent limits for applicable bacteria criteria unless a Use Attainability Analysis (UAA) is conducted and approved. Fecal coliform effluent limits of 400 colonies/100 ml monthly average, 1000 colonies/100 ml daily maximum apply during the recreational season (April 1-October 31) [10 CSR 20-7.015(8)(B)4.A.]

- **Oil & Grease** Oil and grease is a conventional pollutant in domestic wastewater. Effluent limitations based on the protection of aquatic life are a monthly average of 10 mg/l and daily maximum of 15 mg/l.

- **WET Test**. Whole Effluent Toxicity test shall be conducted as follows:

Summary of Wet Testing for This Permit				
Outfall	A.E.C. %	Frequency	Sample Type	Month
001	100%	once/year	24 hr. composite	April

WET test shall be an acute, multiple dilution test.

OUTFALL #002 – PEAK FLOW CLARIFIER
Outfall #002 is a "bypass" outfall used when necessary to protect treatment facilities from damage which would cause them to become inoperable. 40 CFR 122.42(m)

- **Biochemical Oxygen Demand (BOD_5)**. 10 CSR 20-7.015(8)(B)1.

- **Total Suspended Solids (TSS)**. 10 CSR 20-7.015(8)(B)1.

- **pH.** Effluent limitation has been retained from previous state operating permit, [10 CSR 20-7.015(8)(B)3.E.].

Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein or within the operating permit. The proposed determinations are tentative pending public comment.

GENERAL ASSUMPTIONS OF THE FACT SHEET:

1. A Fact Sheet assumes that [10 CSR 20-6.010(3) Continuing Authorities] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A Fact Sheet does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made subsequent to the drafting of this Fact Sheet may alter effluent limitations and or permit conditions.
4. Water Quality Based Effluent Limitations supercede Effluent Guidelines Limits only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
5. A Fact Sheet does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
6. Limitations and other requirements in a Fact Sheet may change as Water Quality Standards, Methodology, and Implementation procedures change.

PUBLIC NOTICE:
As per the Missouri Clean Water Law, the Missouri Clean Water Commission, and the federal Clean Water Act, persons wishing to comment on Missouri State Operating Permits are directed to do so by a department approved Public Notice coversheet. This Public Notice coversheet is attached to a Missouri State Operating Permit during the Public Notice period.

☒ - The Public Notice period for this operating permit is tentatively schedule to begin on March 9, 2007 or is in process.

☐ - The Public Notice period for this operating permit was from (DATE) to (DATE). Responses to the Public Notice of this operating permit warrant the modification of effluent limits and/or the terms and conditions of this permit. (Please explain). (Also if applicable – Due to the major modifications of this permit, this operating permit is to be placed on Public Notice again, which is tentatively scheduled to begin on (DATE) or is in process.

☐ - The Public Notice period for this operating permit was from (DATE) to (DATE). No responses received or responses to the Public Notice of this operating permit do not warrant the modification of effluent limits and/or the terms and conditions of this permit.

Date of Fact Sheet: 2-13-07

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